



LEVELnews

Great Lakes — St. Lawrence River Water Levels

All beginning-of-August levels at or below those of last year

The beginning-of-August levels of all the Great Lakes were at the same level or below those seen at the same time in 2017. This is due to the relatively dryer conditions across the Great Lakes basin in the past year compared to those of a year ago. However all of the Great Lake levels remain above average, with the July monthly average levels ranging from 6 cm to 49 cm above period-of-record monthly average (1918–2017) and beginning-of-August levels ranging from 2 cm to

46 cm above their period-of-record averages. The water levels in the lower St. Lawrence River varied through July due to slowly decreasing outflows from Lake Ontario and variable flows from the Ottawa River but the July monthly mean level was also above average.

July monthly lake levels

All the Great Lakes had above average monthly mean water levels in July. Lake Erie continued to be the highest above average of the Great

Lakes but Lake Ontario has been moving toward average values and became the closest to average for the month of July, instead of Lake Superior's, which have been closest for the last few months. Lake Superior was 14 cm above its period-of-record (1918–2017) July monthly mean water level and 10 cm below its value in July 2017. Lake Michigan–Huron's monthly mean level in July was 40 cm above average but 1 cm lower than last July's level. Lake Erie's monthly mean

Great Lakes Water Level Information

Lake	July 2018 Monthly Mean Level		Beginning-of-August 2018 Level	
	Compared to Monthly Average (1918–2017)	Compared to One Year Ago	Compared to Beginning-of-Month Average (1918–2017)	Compared to One Year Ago
Superior	14 cm above	10 cm below	13 cm above	9 cm below
Michigan–Huron	40 cm above	1 cm below	39 cm above	4 cm below
St. Clair	51 cm above	1 cm above	52 cm above	2 cm below
Erie	49 cm above	1 cm above	46 cm above	Same
Ontario	6 cm above	63 cm below	2 cm above	60 cm below

level was 49 cm above average, but just 1 cm above the level of the previous July, and the highest it has been for the month of July since 1997. Lake Ontario's July monthly mean level was 6 cm above average but 63 cm lower than the record high value for the month set in July 2017.

Lake level changes

A combination of mixed water supplies across the Great Lakes for July combined with continued above average outflows resulted in all the lakes except Superior experiencing dryer than average conditions during the month of July. Lake Superior's above average water supplies were not offset by above average outflows resulting in its level rising 6 cm through the month of July when on average (1918–2017) it rises 4 cm. Lake Michigan–Huron experienced below average water supplies for the month and combined with higher than average outflows had its 5th largest fall of 5 cm through July, when on average it rises by 1 cm. Lake Erie's water supplies were also above average, but the higher than average outflow from the lake resulted in its levels dropping by 12 cm, the 2nd highest amount for July, and three times its average fall of 4 cm during the month. Above average water supplies to Lake Ontario

were also offset by above average outflows resulting in its level falling 18 cm, twice its average fall of 9 cm, and the 9th largest July fall on record for the lake.

Beginning-of-August lake levels

All the Great Lakes beginning-of-August levels were above average but the same or below those seen one year ago at the same time. Lake Superior's beginning-of-August level was 13 cm above average (1918–2017), but 9 cm below the level at this time last year. Lake Michigan–Huron's beginning-of-August level was 39 cm above average but 4 cm lower than last year. Lake Erie was 46 cm above average at the beginning of August and the same level as this time last year. This level is the highest Lake Erie has been since 1997 and it has been higher than this in only 5 years since 1918, but the beginning-of-August level is now 24 cm below its period-of-record maximum set in 1986. Lake Ontario's level at

the start of August was only 2 cm above average and 60 cm lower than the high water levels last year. At the beginning of August, all of the lakes were at least 46 cm above their chart datum level.

Current water levels

When planning activities around the Great Lakes it is often useful to know the current water levels before heading out. Great Lake levels change from day-to-day due to lake wide changes in water quantity as well as local wave and wind effects. In order to keep up with current water level conditions on the lakes there are several sources that can be used.

- The [Government of Canada's Great Lakes water levels and related data website](https://www.canada.ca/en/environment-climate-change/services/water-overview/quantity/great-lakes-levels-related-data.html) at: <https://www.canada.ca/en/environment-climate-change/services/water-overview/quantity/great-lakes-levels-related-data.html> provides a source

July Precipitation over the Great Lakes^{1,2}

Great Lakes Basin	80%	Lake Erie	85%
Lake Superior	89%	(including Lake St. Clair)	
Lake Michigan–Huron	68%	Lake Ontario	93%

July Outflows from the Great Lakes¹

Lake Superior	109%	Lake Erie	116%
Lake Michigan–Huron	108%	Lake Ontario	119%

¹ As a percentage of the long-term July average.

² US Army Corps of Engineers

NOTE: These figures are preliminary.

for information on Great Lakes levels.

- The United States Army Corps of Engineers' Great Lakes Water Levels website at: <http://www.lre.usace.army.mil/Missions/Great-Lakes-Information/Great-Lakes-Water-Levels/Current-Conditions/> provides the daily average levels for each of the Great Lakes. Click on "The Great Lakes Water Levels Report for the Current Month" for the most recent daily average water levels. The daily average water level is an average taken from a number of gauges across each lake and a comparison

from day-to-day is a good indicator of the overall lake level change due to water supplies and outflows.

- Hourly lake levels from individual gauge sites can be found at the Government of Canada's Great Lakes Water Level Gauging Stations website at: <http://tides.gc.ca/eng/find/region/6>. These levels are useful for determining real-time water levels at a given site, however it should be noted that they are subject to local, temporary effects on water levels such as wind and waves.

Water levels forecast

With the summer period about half complete at the beginning of August most lakes are now expected to enter their late summer seasonal declines assuming average water supplies. Relative to its beginning-of-August levels, Lake Superior's levels are expected to remain steady through the month of August with average water supplies. All the other Great Lakes are expected to continue their seasonal declines through August. Based on past conditions on the lakes (1918–2017), and their beginning-of-August water levels, all the Great Lakes are likely to remain above average for the remainder of the summer. With the wet July supplies on Lake Superior and the relatively high levels of Lakes

Michigan–Huron and Erie, these lakes are expected to stay above average for the next three months, even if very dry conditions are encountered. The probable range of future levels for Lake Superior are between 1 cm and 24 cm above average, Lake Michigan–Huron are between 26 cm and 50 cm above average and Lake Erie are between 27 cm and 54 cm above average through to October. Levels of Lake Ontario could fall below average by the end of August, if dry conditions occur. Lake Ontario is estimated to be between 15 cm below average to 19 cm above average by October. Even if very wet conditions are encountered, it is unlikely that any of the lakes will hit their record high levels by the beginning of fall. For more information on how the probable range of water levels is forecasted see the July 2018 edition of LEVELnews. For a graphical representation of recent and forecasted water levels on the Great Lakes, refer to the Canadian Hydrographic Service's monthly water levels bulletin at: <http://tides-marees.gc.ca/C&A/bulletin-eng.html>.

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